

**AMENDMENTS TO THE CLAIMS**

Please replace the prior listing of claims in the application with the following listing of claims:

1. (Currently amended): A method of inflating a tire, said method comprising the steps of:

providing an air supply source in fluid communication with said tire by means of a pneumatic conduit;

providing a tire pressure retention valve in said pneumatic conduit adjacent to said tire;

determining an inflation pressure of the tire with a step-up procedure, whereby air bursts of a generally predetermined volume are communicated from said air supply source to a portion of the pneumatic conduit between the air supply source and said tire pressure retention valve;

inflating said tire with an extended-pulse procedure, whereby extended bursts of air are communicated from said air supply source to the tire; and

performing a shut-down sequence once a predetermined target inflation pressure in said tire is reached, whereby over-inflation of the tire generally is prevented by said method steps.

2. (Currently amended): The method of inflating a tire of claim 21, wherein a determination of said volume of said at least one selected communicated air burst includes the steps of:

calculating a pressure level with reference to said volume of said section of said conduit;

taking a reading of a pressure in said section of said conduit;

comparing said pressure reading to said calculated pressure level; and

correlating an operation of a controllable valve to a result of said comparison;

3. (Currently amended): The method of inflating a tire of claim 1, further comprising the step of verifying the proper functioning of said tire pressure retention valve;

4. (Currently amended): The method of inflating a tire of claim 3, wherein the step of verifying the proper functioning of said tire pressure retention valve includes the steps of:

providing a first valve in fluid communication with said pneumatic conduit between said air supply source and said tire pressure retention valve;

providing a second valve in fluid communication with said pneumatic conduit between said first valve and said tire pressure retention valve;

sealing the portion of said pneumatic conduit between said first valve and said tire pressure retention valve;

reading the pressure in said sealed portion of said pneumatic conduit a first time;

determining if said first pressure reading indicates increasing pressure in said sealed portion of said pneumatic conduit;

if said first reading indicates increasing pressure, opening said first valve, whereby a burst of air is communicated from said supply source to said tire pressure retention valve, thereby attempting to re-seat said tire pressure retention valve;

closing said first valve;

reading the pressure in said sealed portion of said pneumatic conduit a second time;

determining if said second pressure reading indicates increasing pressure in said sealed portion of said pneumatic conduit; and

if said second reading indicates increasing pressure in said sealed portion of said pneumatic conduit, keeping said sealed portion of said pneumatic conduit sealed.

5. (Currently amended): The method of inflating a tire of claim 1, further comprising the step of diagnosing said system to determine if a leak in said tire pressure retention valve exceeds a vent capacity of said system.

6. (Currently amended): The method of inflating a tire of claim 5, wherein the step of diagnosing said system includes the steps of:

providing a first valve in fluid communication with said pneumatic conduit between said air supply source and said tire pressure retention valve;

venting the portion of said pneumatic conduit between said first valve and said tire pressure retention valve;

reading the pressure in said portion of said pneumatic conduit between said first valve and said tire pressure retention valve a first time;

sealing said portion of said pneumatic conduit between said first valve and said tire pressure retention valve;

reading the pressure in said pneumatic conduit between said first valve and said tire pressure retention valve a second time;

determining if said second reading is higher than said first reading; and

if said second reading is higher than said first reading, diagnosing said tire pressure retention valve;

7. (Currently amended): The method of inflating a tire of claim 1, further comprising the step of checking the integrity of a portion of said pneumatic conduit;

8. (Currently amended): The method of inflating a tire of claim 7, wherein the step of checking the integrity of a portion of said pneumatic conduit includes the steps of:

providing a first valve in fluid communication with said pneumatic conduit between said air supply source and said tire pressure retention valve;

providing a second valve in fluid communication with said pneumatic conduit between said first valve and said tire pressure retention valve;

sealing the portion of said pneumatic conduit between said first valve and said tire pressure retention valve;

opening said first valve, whereby a burst of air is communicated to said sealed portion of the pneumatic conduit;

closing said first valve;

reading the pressure in said sealed portion of said pneumatic conduit a first time;

waiting for a predetermined amount of time;

reading the pressure in said sealed portion of said pneumatic conduit a second time;

comparing said first and second readings; and

if said second reading is lower than said first reading, venting the portion of said pneumatic conduit between said first valve and said tire pressure retention valve to atmosphere;

9. (Currently amended): The method of inflating a tire of claim 8, wherein a volume of said burst of air that is communicated to said sealed portion of said pneumatic conduit when said first valve is opened is related to a target inflation pressure of said tire;

10. (Currently amended): The method of inflating a tire of claim 1, wherein the method further comprises the step of verifying the proper functioning of a pressure indicator, including the steps of:

providing a controllable valve in fluid communication with said pneumatic conduit between said air supply source and said tire pressure retention valve;

providing a pressure indicator in fluid communication with said pneumatic conduit between said controllable valve and said tire pressure retention valve;

venting to atmosphere the portion of said pneumatic conduit between said controllable valve and said tire pressure retention valve;

reading the pressure in said vented portion of the pneumatic conduit with said pressure indicator a first time;

determining if said first pressure reading is above atmospheric pressure by at least a predetermined amount;

if said first pressure reading is above atmospheric pressure by at least a predetermined amount, cycling said controllable valve;

reading the pressure in said vented portion of the pneumatic conduit with said pressure indicator a second time; and

if said second pressure reading is above atmospheric pressure by at least a predetermined amount, activating a warning light system.

11. (Currently amended): The method of inflating a tire of claim 1, further comprising the steps of:

diagnosing selected system components; and

activating a warning light system if said diagnosis indicates a problem.

12. (Currently amended): The method of inflating a tire of claim 1, wherein the step of determining the inflation pressure of said tire with a step-up procedure includes the steps of:

providing a first valve in fluid communication with said pneumatic conduit between said air supply source and said tire pressure retention valve;

providing a second valve in fluid communication with said pneumatic conduit between said first valve and said tire pressure retention valve;

sealing the portion of said pneumatic conduit between said first valve and said tire pressure retention valve;

opening said first valve for a first period of time, whereby a first burst of air is communicated to said sealed portion of said pneumatic conduit;

closing said first valve;

reading the pressure in said sealed portion of said pneumatic conduit a first time;  
determining if said first pressure reading is at a target inflation pressure;  
if said first pressure reading is at said target inflation pressure, shutting said tire inflation system down;

if said first pressure reading is below said target inflation pressure:

opening said first valve for a second period of time, whereby a second burst of air is communicated to said sealed portion of said pneumatic conduit;

closing said first valve;

reading the pressure in said sealed portion of said pneumatic conduit a second time;

determining if said second pressure reading is below said target inflation pressure; and

if said second pressure reading is below said target inflation pressure, repeating said steps of opening said first valve for a second period of time, closing said first valve, reading the pressure in said sealed portion of said pneumatic conduit a second time, and determining if said second pressure reading is below said target inflation pressure.

13. (Currently amended): The method of inflating a tire of claim 12, further comprising the steps of:

counting the number of air bursts communicated to said sealed portion of said pneumatic conduit; and

if said target inflation pressure is not reached within a predetermined number of bursts, opening said first valve for a third period of time.

14. (Currently amended): The method of inflating a tire of claim 12, wherein a determination of a volume of at least one of said first and said second bursts of air includes the steps of:

calculating a pressure level with reference to a volume of said sealed portion of said pneumatic conduit;

comparing at least one of said pressure readings to said calculated pressure level;  
and

correlating an operation of at least one of said valves to the result of said comparison.

15. (Currently amended): The method of inflating a tire of claim 1, wherein the step of determining the inflation pressure of said tire with a step-up procedure includes an oversize line check sequence, comprising the steps of:

providing a first valve in fluid communication with said pneumatic conduit between said air supply source and said tire pressure retention valve;

providing a second valve in fluid communication with said pneumatic conduit between said first valve and said tire pressure retention valve;

sealing the portion of said pneumatic conduit between said first valve and said tire pressure retention valve;

opening said first valve for a first period of time, whereby a first burst of air is communicated to said sealed portion of said pneumatic conduit;

closing said first valve;



reading the pressure in said sealed portion of said pneumatic conduit a first time;  
determining if said first pressure reading is more than a predetermined amount below a target inflation pressure;  
if said first pressure reading is more than a predetermined amount below said target inflation pressure, opening said first valve for a second period of time, whereby a second burst of air is communicated to said sealed portion of said pneumatic conduit,

16. (Currently amended): The method of inflating a tire of claim 15, wherein said predetermined amount relates to a volume of a selected section of said conduit,

17. (Currently amended): The method of inflating a tire of claim 1, wherein the step of inflating the tire with an extended-pulse procedure includes the steps of:

providing a first valve in fluid communication with said pneumatic conduit between said air supply source and said tire pressure retention valve;

providing a second valve in fluid communication with said pneumatic conduit between said first valve and said tire pressure retention valve;

sealing the portion of said pneumatic conduit between said first valve and said tire pressure retention valve;

opening said first valve for a first period of time, whereby a first burst of air is communicated to said sealed portion of said pneumatic conduit;

closing said first valve;

reading the pressure in said sealed portion of said pneumatic conduit a first time;

if said first pressure reading is less than a target inflation pressure:

opening said first valve for a second period of time, whereby a second burst of air is communicated to said sealed portion of said pneumatic conduit;

closing said first valve;

reading the pressure in said sealed portion of said pneumatic conduit a second time;

determining if said second pressure reading is below said target inflation pressure;

if said second pressure reading is below said target inflation pressure, repeating said steps of opening said first valve for a second period of time, closing said first valve, reading the pressure in said sealed portion of said pneumatic conduit a second time, and determining if said second pressure reading is below said target inflation pressure; and

terminating said inflation procedure when the pressure in said sealed portion of said pneumatic conduit is at said target inflation pressure.

18. (Currently amended): The method of inflating a tire of claim 17, further comprising the steps of:

monitoring the time spent repeating said steps of opening said first valve for a second period of time, closing said first valve, reading the pressure in said sealed portion of said pneumatic conduit a second time, and determining if said second pressure reading is below said target inflation pressure; and

if said monitored time exceeds a predetermined amount of time, diagnosing said tire inflation system.

19. (Currently amended): The method of inflating a tire of claim 17, further comprising the steps of:

determining if said first pressure reading is more than a predetermined amount below said target inflation pressure;

if said first pressure reading is more than a predetermined amount below said target inflation pressure:

opening said first valve for a third period of time, whereby a third burst of air is communicated to said sealed portion of said pneumatic conduit;

closing said first valve;

reading the pressure in said sealed portion of said pneumatic conduit a third time;

determining if said third pressure reading is more than a predetermined amount below said target inflation pressure; and

if said third pressure reading is more than said predetermined amount below said target inflation pressure, diagnosing said tire inflation system;

20. (Currently amended): The method of inflating a tire of claim 1, wherein the step of performing a shut-down sequence once said predetermined target inflation pressure in said tire is reached includes the steps of:

providing a controllable valve in fluid communication with said pneumatic conduit between said air supply source and said tire pressure retention valve;

venting the portion of said pneumatic conduit between said controllable valve and said tire pressure retention valve;

verifying the proper functioning of said tire pressure retention valve; and

if pressure verification indicates said pressure retention valve is not properly functioning, sealing the portion of said pneumatic conduit between said controllable valve and said tire pressure retention valve;

21. (Currently amended): The method of inflating a tire of claim 1, wherein the volume of at least one selected communicated air burst is related to a volume of a section of said conduit;

22. (Canceled)

23. (Canceled)

24. (Canceled)

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27. (Canceled)

28. (Canceled)

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30. (Canceled)

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)